MORPHOLOGICAL OBSERVATIONS OF ASIDIAN LARVAE 2. CHELYOSOMA SIBOJA OKA

BULLETIN OF THE MARINE BIOLOGICAL STATION OF ASAMUSHI,
VOL. VIII, NO. 1. 1956

MORPHOLOGICAL OBSERVATIONS OF ASIDIAN LARVAE

2. *CHELYOSOMA SIBOJA* OKA[1),2)]

By

ETURÔ HIRAI
平井越郎
Marine Biological Station of Asamushi,
Aomori Prefecture, Japan

(With one figure)

Chelyosoma siboja OKA, Japanese species name Suboya, is a very abundant solitary ascidian in Mutsu Bay, Aomori Prefecture, and is dredged from the bottom of about 20 meters in depth. In spite of such abundance in Mutsu Bay, the developmental study has never been carried out on this species. The present writer is observing the development of this species, and the present paper deals with the structure of the tadpole larva. The breeding season of this species is from December to January. This species is oviparous and liberates the germ cells spontaneously in the laboratory. The living egg is orange or yellow in colour which differs with individuals. The tadpole larvae hatch out about 45 hours after the spontaneous spawning at 12–13°C, and most of them are metamorphosed within a day at the same temperature.

(1) DIAGNOSTIC CHARACTERS OF THE LARVA

Form and size: External form is of slender type. Total length, *ca.* 1.3 mm, body length, *ca.* 0.4 mm, and 0.15 mm in depth of the body. The living tadpole larva contains orange or yellow yolk granules.

Structures of the larval organs: There are three adhesive papillae which are short and have no stalks at the anterior end of the body. There are eye and static organ in the sensory vesicle, but eye is degenerative and is composed of only 5–6 pigment granules at the postero-dorsal part of the static organ. The epidermal outgrowths are not visible even after the metamorphosis. Tail fin is transparent and is oriented dorsoventral. Notochord is tubular and transparent, but some cellular structures are visible in the posterior part.

Rudiments of the adult organs: The rudiments of the adult organs are

1) Contributions from the Marine Biological Station of Asamushi, No. 220.
2) Aided by a grant from the Scientific Research Expenditure of the Department of Education.

poorly developed. The rudiments of the endodermal organs occupy the most part of the body. A small ectodermal invagination of the rudiment of the branchial aperture is visible in front of the sensory vesicle in the section of the fixed material.

Arrangement of the adhesive papillae: The arrangement is of triangular form, and one side of the triangle is dorso-ventral, the dorsal papilla is on right side, and one corner is observed on the left side which is lower than the dorsal papilla.

Relative position of sensory vesicle, branchial and atrial apertures: It is a type of the linear parallel to the body axis on the dorsal side of the body. One atrial aperture is visible on the dorsal side in the metamorphosing larva.

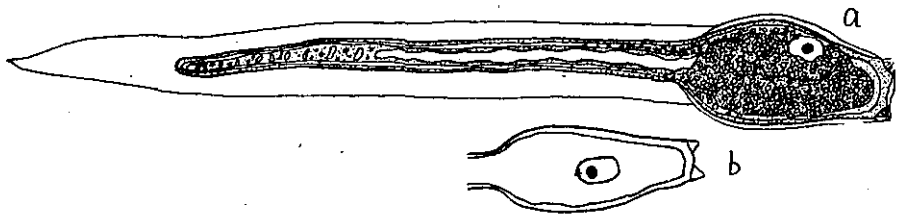

Fig. 1. Living tadpole larva of *Chelyosoma siboja*.
a. right side view, b. dorsal view of body. ×83.

(2) REMARKS

The tadpole larva of *Chelyosoma siboja* OKA resembles that of *Halocynthia roretzi* (DRASCHE) in form and in colour. But the former is a little smaller and has a comparatively stout body than the latter. The degenerative eye with the pigment granules in small numbers is one of the character of this tadpole. On the structures of the larval organs, the rudiments of adult organs, and on the arrangements of organs, the tadpole larva of this species is considered as a typical type of Type I *Cynthia* type, Subtype 1 Simple type (Hirai, '51).

LITERATURE CITED

HIRAI, E. 1951 A comparative study on the structures of the tadpoles of ascidians. Sci. Rep. Tôhoku Univ., (Biol.) **19** (1) : 79-87.

OKA, A. 1935 Report of the biological survery of Mutsu Bay. 28. Ascididae simplices. Sci. Rep. Tôhoku Imp. Univ., [Biol.) **10** (3) : 427-466.